

## Abstract

Described are techniques used in a wire diagnostics system to detect events, such as defects, that may occur within a wire or cable under test. An incident voltage signal is sent out on the wire and a measured voltage signal is obtained which includes the

5 incident voltage and the reflected voltage. Compensation processing is performed on the measured waveform to remove unwanted reflective components. Additionally, the waveform is then subject to attenuation processing and event detection processing. Detected events, such as defects, are classified and output as results. Events are classified by parametric classification using a library of known events or faults. The

10 library of known events or faults is previously generated using empirical analysis and modeling techniques. Additionally, joint time-frequency domain reflectometry (TFDR) techniques are described for event identification and classification for a wire under test.